

1. An image processing method which sets correction conditions for correcting components regarding brightness of image data on the basis of a histogram corresponding to the components regarding image brightness represented by the image data, and corrects the image data according to the set correction conditions, said method comprising the steps of:

2. A method according to Claim 1, wherein said  
15 setting step of setting the correction conditions  
changes a correction for image data, of which the  
components are within a predetermined range, among the  
set correction conditions when the ratio exceeds a  
predetermined value, and sets the correction condition  
20 such that a correction of maintaining the calculated  
component value is to be performed.

3. A method according to Claim 1, further comprising the steps of:

25 calculating a component value in the histogram wherein a cumulative frequency accumulated from the maximum value or the minimum value indicates a

predetermined value within a range of the component value; and

calculating the cumulative frequency from the minimum value or the maximum value to a predetermined component value,

wherein said setting step of setting the correction conditions discriminates degree of lightness on the basis of the calculated component value and the cumulative frequency, and sets the correction conditions on the basis of the discriminated degree of lightness and the calculated ratio.

4. A method according to Claim 3, wherein said setting step of setting the correction conditions changes a correction for image data from the minimum component value to a predetermined component value among the correction conditions set based on the degree of lightness when the calculated ratio exceeds a predetermined value, and sets the correction condition such that a correction of maintaining the component value is to be performed.

5. A method according to Claim 3, wherein said setting step of setting the correction conditions discriminates the degree of lightness on the basis of a ratio of the cumulative frequency for the number of all the pixels in the histogram.

6. A method according to Claim 1, wherein the component value is a brightness value indicated by the image data.

5           7. A method according to Claim 3, wherein said setting step of setting the correction conditions discriminates brightness of the image with plural stages on the basis of the component value, and variably sets the correction conditions every the  
10 discriminated brightness classified into the plural stages.

          8. A method according to Claim 7, wherein said setting step of setting the correction conditions  
15 discriminates brightness distribution of the image with plural stages every the discriminated brightness classified into the plural stages on the basis of the calculated ratio, and variably sets the correction conditions every the discriminated brightness  
20 distribution classified into the plural stages.

          9. A method according to Claim 1, wherein increasing degree of density is emphasized when a ratio of a highlight area is a large ratio as compared with a  
25 case that the ratio of the highlight area is a small ratio, decreasing degree of density is emphasized when a ratio of a shadow area is a large ratio as compared

with a case that the ratio of the shadow area is a small ratio, and expanding degree of dynamic range is emphasized when width of the histogram is narrow as compared with a case that the width of the histogram is wide.

10. An image processing method which sets a correction condition for an input image in accordance with a ratio of a shadow area in the input image, said method comprising the steps of:

setting a first correction condition for the input image in accordance with a ratio of a first shadow area in the input image; and

adjusting a correction condition for a shadow area of the first correction condition in accordance with a ratio of a second shadow area, of which range is different from that of the first shadow area, in the input image.

11. An image processing method which discriminates degree of lightness of an image on the basis of a histogram related to the number of pixels of a component value regarding image brightness indicated by image data, sets degree of correction component regarding brightness of the image data on the basis of the discriminated result, and corrects the components according to the set degree of correction component,

said method comprising the steps of:

calculating a component value in the histogram  
wherein a cumulative frequency accumulated from the  
maximum value or the minimum value indicates a  
predetermined value within a range of the component  
value;

calculating a cumulative frequency accumulated  
from the maximum value or the minimum value to a  
predetermined component value in the histogram;

discriminating the degree of lightness on the  
basis of the calculated component value and the  
cumulative frequency; and

setting the degree of correction component on the  
basis of the discriminated result.

12. A method according to Claim 11, wherein said  
setting step of setting the degree of correction  
component discriminates the degree of lightness on the  
basis of a ratio of the cumulative frequency to the  
number of pixels in the histogram.

13. A method according to Claim 11, wherein the  
component value is a brightness value indicated by the  
image data.

14. A method according to Claim 12, wherein said  
setting step of setting the degree of correction

component discriminates brightness of the image with plural stages on the basis of the component value and variably sets the degree of correction component every the discriminated brightness classified into the plural stages.

15. A method according to Claim 14, wherein said setting step of setting the degree of correction component discriminates brightness distribution of the image with plural stages every the discriminated brightness classified into the plural stages on the basis of the calculated ratio and variably sets the degree of correction component every the discriminated brightness distribution classified into the plural stages.

16. An image processing apparatus which sets correction conditions for correcting components regarding brightness of image data on the basis of a histogram corresponding to the components regarding image brightness represented by the image data, and corrects the image data according to the set correction conditions, comprising:

calculation means for calculating a ratio of the components included within a predetermined range in the histogram; and

setting means for setting the correction

conditions on the basis of the calculated ratio.

17. An image processing apparatus which sets a correction condition for an input image in accordance with a ratio of a shadow area in the input image, comprising:

5                    setting means for setting a first correction condition for the input image in accordance with a ratio of a first shadow area in the input image; and  
10                   adjustment means for adjusting a correction condition for a shadow area of the first correction condition in accordance with a ratio of a second shadow area, of which range is different from that of the first shadow area, in the input image.

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18. An image processing apparatus which discriminates degree of lightness of an image on the basis of a histogram related to the number of pixels of a component value regarding image brightness indicated  
20 by image data, sets degree of correction component regarding brightness of the image data on the basis of the discriminated result, and corrects the components according to the set degree of correction component, comprising:

25                   calculation means for calculating a component value in the histogram wherein a cumulative frequency accumulated from the maximum value or the minimum value

indicates a predetermined value within a range of the component value;

calculation means for calculating a cumulative frequency accumulated from the maximum value or the minimum value to a predetermined component value in the histogram;

discrimination means for discriminating the degree of lightness on the basis of the calculated component value and the cumulative frequency; and

setting means for setting the degree of correction component on the basis of the discriminated result.

19. A storage medium which stores a computer-readable program of a method which sets correction conditions for correcting components regarding brightness of image data on the basis of a histogram corresponding to the components regarding image brightness represented by the image data, and corrects the image data according to the set correction conditions, said method comprising the steps of:

calculating a ratio of the components included within a predetermined range in the histogram; and

setting the correction conditions on the basis of the calculated ratio.

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20. A storage medium which stores a computer-readable program of a method which sets a correction



condition for an input image in accordance with a ratio of a shadow area in the input image, said method comprising the steps of:

5        setting a first correction condition for the input image in accordance with a ratio of a first shadow area in the input image; and

10        adjusting a correction condition for a shadow area of the first correction condition in accordance with a ratio of a second shadow area, of which range is different from that of the first shadow area, in the input image.

21. A storage medium which stores a computer-readable program of a method which discriminates degree of lightness of an image on the basis of a histogram related to the number of pixels of a component value regarding image brightness indicated by image data, sets degree of correction component regarding brightness of the image data on the basis of the discriminated result, and corrects the components according to the set degree of correction component, said method comprising the steps of:

25        calculating a component value in the histogram wherein a cumulative frequency accumulated from the maximum value or the minimum value indicates a predetermined value within a range of the component value;

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